Leading by Example Program
Solar Site Selection Survey

Introduction

The Massachusetts Leading by Example program (LBE) implements Governor Patrick's executive order 484 by helping agencies reduce fossil fuel consumption and associated greenhouse gas emissions. This survey form is a screening tool designed to help identify possible locations at state facilities where solar PV and thermal (hot water) installations might be appropriate. LBE staff will review survey information to identify the sites that are suitable for more in-depth site assessments by solar consultants. Following successful site assessments, LBE staff, in coordination with other state agencies, will work with designated facilities to develop a plan for one or more solar installations.

Please note that completion of this form and selection for a site assessment does not guarantee a solar installation. If your site has been identified as a suitable solar location, as part of the project plan, LBE staff will discuss with you options for project financing, which can include funds from a variety of sources. Agencies should be aware that some agency funds, either capital or operating, may be required to finance projects.

Please review the information on page 3 to help you determine whether your site(s) is appropriate for solar. Once you review this information and think your facility has buildings that may be appropriate sites for PV and/or thermal installations please fill out this form and return it to the contact listed below. We look forward to collaborating with you.

Contact Information

1. Facilities Manager or other contact that will have information on roof loads, roof layout.

   Agency _____
   Name and Title: _____
   Email/phone: _____

2. Person who can authorize installation of a solar system.

   Name and Title: _____
   Email/phone: _____

Please return completed forms to: Natalie Howlett - MA Division of Energy Resources
100 Cambridge St., Suite 1020 - Boston, MA 02114

For More Information call: (617) 727-4732 x 40143 or email Natalie.Howlett@state.ma.us

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Please complete the following table for each building/site presented for consideration. Make copies as needed.

Building/Roof Details	
Site and building name	
Building address	
Number of floors	
Square footage (if known)	
Roof slope/angle (Flat = 0^{o})	
Roof orientation (S, SE, SW, etc.)	
Estimated shading on roof (am %, pm %)	
Roof size – square feet	
Digital photos of roof available?	Yes / No (if yes please include)
Roof condition: poor, fair, good, excellent, new	
Roof type (asphalt, shingles, rubber membrane, etc.)	
Roof warrantee (years remaining)	
Expected life of roof (years)	
Equipment/obstructions on the roof	If Yes, please describe briefly
Detailed roof drawings available	Yes / No

Solar Hot Water	
How is hot water heated? (Oil, gas, electric)	
Size of existing hot water storage tank (gallons)	
What is hot water used for?	
When is hot water used (e.g. 5 days/week, 9-5, Sept.-June)	
Available floor space adjacent to existing hot water tank for additional storage tank?	Yes / No
Distance from roof to existing hot water storage tank (feet/floors)	

Solar Photovoltaic (PV)	
Electric utility company	
Electric meter #	
Meter rate/class e.g. G1, R2 etc	
Electric rate (e.g. total cost per kWh)	
Actual/Estimated Annual Consumption (kWh)	
Service voltage from utility	
Floor plan showing electrical room	Yes / No
Single line electrical wiring drawing	Yes / No

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Solar Survey Guidance

I. Roof-Mounted vs. Ground-Mounted

Solar systems can be mounted on roofs, integrated into awnings or installed at ground level on rack structures. In general, roof-mounted systems are preferred because they require shorter runs, are less vulnerable to vandalism and are more aesthetically appealing than ground-mounted systems. Where roof-mounting is not an option, open, adjacent land is a potential alternative where security concerns are not an issue. Ground mounting does have advantages: easy access, high visibility, and easy expansion with additional panels. If you have unshaded secure land that might be ideal for solar, please note that on your form.

II. Orientation & Shading

South facing is best to maximize overall production, but it is still possible to achieve near optimal production with a southeast or southwest site. Solar panels require essentially shade-free placement. The most common items that will cause shading are trees, other buildings, telecommunications and HVAC equipment. Please comment below on any noticeable shading (in the morning or evening) at your proposed site. Selected sites will receive a full solar window analysis to confirm this assessment.

III. Roof size & Drawings

Construction Documents showing the roof size, dimensions and structural drawings will reduce costs and greatly facilitate the design and construction of a solar project.

IV. Roof Condition and planned roof repair work

The best time to install a roof-mounted solar system is during construction or roof replacement to achieve the lowest installation cost. PV panels have a 20-25 year warranty and solar hot water panels have a 10 year warranty and typically last longer, so we are looking for roofs with no expected repair needs for 20 years.

V. Hot Water Load and Proximity to Storage Tank

Sites with year round and fairly constant hot water demand are the most appropriate for thermal applications. Pools, dorms, prisons and hospitals are good examples. Solar hot water systems will need a storage tank, which should be close to the existing hot water system to minimize pipe runs and heat losses.

VI. Electric Load and Proximity to Electric Meter

PV systems should be as close to the electric meter as possible to minimize wire transmission losses. Please attach a recent electricity bill, provide actual or estimated annual consumption data, and provide a single line electrical diagram if available.

VII. Energy Efficiency

Energy efficiency upgrades are far more cost-effective than adding solar panels. Buildings that can demonstrate energy efficiency or will soon undergo efficiency upgrades will be given priority for Renewable energy installations. Please attach/email a brief summary of any recent or planned building energy efficiency upgrades.